Claims

[c1]   What is claimed is:

1. A semiconductor process and yield analysis integrated real-time management method, comprising:

inspecting a plurality of semiconductor products with a plurality of items during semiconductor process, and recording a plurality of inspecting results of each semiconductor product;

classifying the semiconductor products as a plurality of groups with a predetermined rule, generating a raw data according to the inspecting results of each group, and recording the raw data and the corresponding groups in a database;

indexing a plurality of semiconductor product groups from the database by a predetermined product rule, indexing the corresponding raw data of each semiconductor product group by a predetermined parameter, and calculating a corresponding analysis result from the indexed semiconductor product groups and raw data with an analysis module; and

displaying the analysis result according to the indexed semiconductor product groups and the raw data.

[c2]   2. The method of claim 1 wherein each semiconductor products are chips situated on different positions of a wafer, indexing the semiconductor product groups is performed by gathering statistics of the inspecting results according to their positions, and displaying the inspecting results of each chip is performed according to their positions of the wafer.

[c3]   3. The method of claim 1 wherein the semiconductor products are different kinds or lots of wafers, indexing the semiconductor product groups is performed by gathering statistics of the inspecting results according to the kinds, lots or manufacturing dates of wafers, and displaying the inspecting results is performed according to kinds, lots and manufacturing dates of each wafer.

[c4]   4. The method of claim 1 wherein the inspecting results and statistics of the semiconductor products are indexed and displayed according to a predetermined period.

[c5]   5. The method of claim 1 wherein each semiconductor product is a wafer processed by different processes, the inspecting results are the results of defect inspection of the wafer in the manufacturing process, indexing the results of defect inspection, and displaying the results of defect inspection are performed according to the kind and date of the processes.

[c6]   6. The method of claim 1 wherein each semiconductor product is a wafer processed by different processes, indexing and gathering statistics are performed by examining time trends of the inspecting results of the processes, and displaying the trend charts according to kinds and date of the processes.

[c7]   7. The method of claim 1 wherein each semiconductor product is a wafer processed by different manufacturing processes, indexing and gathering statistics are performed by indexing and gathering inspecting results within a predetermined period, and the corresponding inspecting results are displayed according to the predetermined period.

[c8]   8. The method of claim 1 further comprising recording the analysis results in the different periods, comparing the similarity of the analysis results, and displaying the similar analysis results.

[c9]   9. The method of claim 8 wherein the analysis results in the different periods are record as a plurality of corresponding modules of analysis results according to a experimental value; after comparing a analysis result with another previous analysis result, updating the experimental value to build a new module of analysis results if

the analysis results is not similar to the previous analysis results, or recording the analysis result as a module of analysis results if the analysis result is similar to the previous analysis result.

[c10]   10. The method of claim 1 wherein the analysis result is displayed with visual interface of a computer.

[c11]   11. The method of claim 10 wherein each indexed semiconductor product group is listed with the visual interface, and users can find the corresponding raw data and corresponding analysis results according to the indexed semiconductor product groups in the cross reference way.

[c12]   12.The method of claim 1 wherein the raw data are listed with the visual interface, and users can find the corresponding semiconductor product groups and the corresponding analysis results according to the indexed raw data in a cross reference way.

[c13]   13. The method of claim 1 further comprising the in-line yield inspection of semiconductor process.

[c14]   14. The method of claim 1 further comprising a sample test of semiconductor wafer.

[c15]   15. The method of claim 1 further comprising a wafer

test.

[c16]   16. The method of claim 1 further comprising a final test.

[c17]   17. The method of claim 1 wherein transferring or querying data provides the analysis results, and the playing is performed by showing an in-line quality control (in-line QC) of each semiconductor product, a root case analysis (RCA) of each process, and a quality control and yield improvement of different kinds of processes being displayed.

[c18]   18. The method of claim 1 wherein the analysis module is a T-test, a one-way analysis of variance (ANOVA), a two-way analysis of variance, or box plots.

[c19]   19. The method of claim 1 wherein displaying the analysis result further comprising:
setting a costumed displaying mode by a user for recording ways to display analysis results; and displaying the analysis results to the user according to the costumed displaying mode.

[c20]   20. The method of claim 19 wherein displaying the analysis result further comprising:
providing a plurality of default displaying modes with each default displaying mode recording a predetermined

way of displaying analysis results, such that the user sets the costumed data displaying mode by selecting a default displaying modes to be the costumed displaying mode.

[c21]   21. The method of claim 1 wherein the inspecting results of each semiconductor product are transferred to processing target of manufacture and yield improvement according to a predetermined target module.